

AMENDMENTS TO THE CLAIMS

Claim 1 (Cancelled)

2. (Previously Presented) A method for manufacturing a reflection type liquid crystal display, comprising

forming plural scanning lines and plural signal lines crossing said scanning lines on an insulating substrate;

forming a switching element in each of picture element regions divided by said scanning lines and said signal lines;

forming an interlayer insulating film by providing appropriate unevenness of an inseparable pattern in the picture element region and providing a contact hole of a separable pattern on a drain electrode of said switching element by plainly applying a photosensitive positive-type acrylic resin having a sensitivity to an i-line of 365nm in wavelength and a h-line of 405nm in wavelength on said substrate so as to dissolve difference in level caused by said scanning lines, said signal lines, and said switching element, and conducting exposure and development while changing an amount of exposure; and

forming a reflex picture element electrode having unevenness due to said interlayer insulating film at a position conforming to each of the picture element regions and which is electrically connected to said switching element through said contact hole, by patterning after forming a high reflex film on said interlayer insulating film, wherein

in the process of forming the interlayer insulating film, the positive type acrylic resin is exposed by divisional (split) exposure in which the inseparable pattern and the separable pattern are exposed by different masks,

an exposure amount for said inseparable pattern is exposed by a predetermined exposure amount of 20 to 80 % of the exposure amount for said separable pattern, and

the exposure for forming unevenness on the interlayer insulation film is conducted only from a front side.

3. (Previously Presented) A method for manufacturing a reflection type liquid crystal display, comprising

forming plural scanning lines and plural signal lines crossing said scanning lines on an insulating substrate;

forming a switching element in each of picture element regions divided by said scanning lines and said signal lines;

forming an interlayer insulating film having appropriate unevenness of an inseparable pattern in the picture element region and having a contact hole of a separable pattern on a drain electrode of said switching element by plainly applying a photosensitive insulating resin on said substrate so as to dissolve difference in level caused by said scanning lines, said signal lines, and said switching element, and conducting exposure and development while changing an amount of exposure; and

forming a reflex picture element electrode having unevenness due to said interlayer insulating film at a position conforming to each of the picture element regions and which is

electrically connected to said switching element through said contact hole, by patterning after forming a high reflex film on said interlayer insulating film, wherein

in the process of forming the interlayer insulating film, a mask is used in exposing the insulating resin and has a shading material comprised of at least two layers, the at least two layers including an ultraviolet filter layer for cutting ultraviolet rays at a predetermined value of 20 to 80 % in a base material, and said ultraviolet filter layer is laid in a mask pattern opening portion located conforming to the picture element region, and

the exposure for forming unevenness on the interlayer insulation film is conducted only from a front side

4. (Previously Presented) A reflection type liquid crystal display manufactured according to claim 2.

5. (Previously Presented) A mask for manufacturing a reflection type liquid crystal display,

the liquid crystal display being formed of: a first insulating substrate provided with scanning lines and signal lines formed into a lattice configuration, a TFT, an interlayer insulating film, and a reflex picture element electrode; a second insulating substrate provided with a color filter and an opposed electrode and arranged opposite to the first insulating substrates;

said interlayer insulating film being formed of a positive type acrylic resin having a sensitivity to i-line of 365nm in wavelength and h-line of 405nm in wavelength;

the mask for exposing said interlayer insulating film comprising a base material and a shading material of at least two layers provided on said base material;

said at least two layers including an ultraviolet filter layer comprising an amorphous Si film of 1nm to 10nm in thickness for cutting ultraviolet rays at a predetermined value of 20 to 80%;

said ultraviolet filter layer being laid in a mask pattern opening portion located conforming to a picture element region.

6. (Original) The mask for manufacturing a reflection type liquid crystal display according to claim 5, wherein an a-Si film is used as the ultraviolet filter layer and a Cr/CrOx film is used as the shading material for completely shading the ultraviolet rays.

Claims 7-15 (Cancelled)

16. (Previously Presented) A method for manufacturing a reflection type liquid crystal display wherein two transparent insulating substrates, in which an electrode is formed on at least one of them, are arranged to be opposite and adhered to each other and a liquid crystal material is held between said two transparent insulating substrates, the method including the steps of:

forming scanning lines, a scanning electrode, and common electrode wiring on one of said two transparent insulating substrates;

forming an insulating film on said scanning lines, said scanning electrode, and said common electrode;

forming a semiconductor layer on said scanning electrode through said insulating film;

forming a first electrode and a second electrode forming a semiconductor element with said semiconductor layer, and forming signal lines;

applying photosensitive positive-type acrylic resin having a sensitivity to i-line of 365nm in wavelength and h-line of 405nm in wavelength on said first electrode, said second electrode, and said signal lines;

sticking an ultraviolet-cut film on a face of the transparent insulating substrate opposite to the face where said photosensitive resin is applied;

exposing said photosensitive resin;

forming an interlayer insulating film having a contact hole at a predetermined position and desired unevenness on the surface by applying a development after exfoliating said ultraviolet-cut film; and

forming a reflex picture element electrode having a configuration of the transferred unevenness on the surface of said interlayer insulating film and electrically connected to said second electrode through said contact hole by forming a high reflex metal film on said interlayer insulating film and in said contact hole, and conducting pattern, wherein

the exposure for forming unevenness on the interlayer insulation film is conducted only from a front side.

17. (Previously Presented) A method for manufacturing a reflection type liquid crystal display wherein two transparent insulating substrates, in which an electrode is formed on at least one of them, are arranged to be opposite and adhered to each other and a liquid crystal material is held between said two transparent insulating substrates, the method including the steps of:

forming scanning lines, a scanning electrode, and common electrode wiring on one of said two transparent insulating substrates;

forming an insulating film on said scanning lines, said scanning electrode, and said common electrode;

forming a semiconductor layer on said scanning electrode through said insulating film;

forming a first electrode and a second electrode forming a semiconductor element with said semiconductor layer, and forming signal lines;

forming an interlayer insulating film having a contact hole at a predetermined position and desired unevenness on the surface by applying photosensitive positive-type acrylic resin having a sensitivity to i-line of 365nm in wavelength and h-line of 405nm in wavelength on said first electrode, said second electrode, and said signal lines, and conducting exposure using a mask and development;

forming another interlayer insulating film having desired unevenness on the surface of another predetermined position by conducting exposure at a different exposure amount using another mask on said resin and development; and

forming a reflex picture element electrode having a configuration of the transferred unevenness on the surface of said interlayer insulating film and electrically connected to said second electrode through said contact hole by forming a high reflex metal film on said interlayer insulating film and in said contact hole, and conducting pattern, wherein

the exposure for forming unevenness on the interlayer insulation film is conducted only from a front side.

18. (Previously Presented) A reflection type liquid crystal display manufactured according to claim 3.

19. (Currently Amended) A reflection type liquid crystal display comprising:

a first substrate having:

a transparent insulating plate ~~substrate~~;

scanning lines, a scanning electrode, and common electrode wiring formed on said transparent insulating plate ~~substrate~~;

an insulating film formed on said scanning lines, said scanning electrode, and said common electrode wiring;

a semiconductor layer on said scanning electrode through said insulating film;

a semiconductor film composed of ~~[[the]]~~ a same film as said semiconductor layer;

a first electrode and a second electrode forming a semiconductor element with said semiconductor layer, and signal lines connected to the first electrode;

an interlayer insulating film which is formed on said first electrode, said second electrode and said signal lines, absorbs difference in level of the scanning lines, first electrode, second electrode and signal lines, and possesses minute unevenness serving as an inseparable pattern on the surface, and is composed of a positive-type resin having a sensitivity to an i-line of 365nm in wavelength and an h-line of 405nm in wavelength;

~~a first substrate having~~ a reflex picture element electrode composed of a high reflex metal film having a configuration transferred to the interlayer insulating film as the unevenness on the surface of said interlayer interlay insulating film and electrically connected to said second electrode through a contact hole provided in the interlayer insulating film and serving as a separable pattern; and

a second substrate sandwiching and holding a liquid crystal material with said first substrate;

wherein said semiconductor film is formed in ~~a region where any opaque metal film is not formed and which is~~ a picture element region excluding the region where said scanning lines, said signal lines and said contact holes are formed;

said inseparable pattern and separable pattern are arranged respectively in different masks and exposed separately; ~~and~~

said inseparable pattern is exposed with a predetermined exposure amount of 20 to 80% of the exposure amount for said separable pattern; and

said transparent insulating plate is processed so that the entire surface does not permit any ultraviolet light to transmit therethrough.